

## A New Perception in Cloud Computing: Hybrid Model

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**Abstract:-** Cloud Computing is one of the developing areas of computer science nowadays. It is providing brilliant facilities to businesspersons by flexible infrastructure. Cloud Computing provides the prospect to access IT resources and facilities with substantial convenience. Business entrepreneurs select cloud on the basis of their necessity and goal. Cloud computing may be good, innovative and useful, it does not mean that it does not have drawbacks. In this research paper we are going to discuss advantages, disadvantages and recommendations to overcome drawbacks of cloud Computing.

**Keywords:** cloud computing, hybrid model

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### I. INFORMATION ABOUT CLOUD COMPUTING:

The “cloud” in cloud computing can be defined as the mixture of hardware, networks, storage, services, and interfaces. Hence Cloud computing is a type of computing where in large groups of remote servers/computers are connected together via network to allow data to be stored centrally and in turn can be accessed online by computer services or resources[1]. Clouds that are over a protected network and that can be accessed only by a certain group of people for e.g. Employees of a company is known as a “Private” Cloud, whereas a cloud that can be anyone for e.g. Email services is called as a “Public” cloud. Nowadays a combination of the two is also gaining popularity and such clouds are known as “Hybrid” clouds [2].

Cloud has become an important part of our life. The concept of cloud is to keep personal and professional data on servers owned by third parties. For example, Google Drive and Drop box, social sites like Facebook or email services like Gmail, Yahoo, Rediff mail cloud services. Main reason for popularity of Clouds is that is very cheap and can be accessed from anywhere and at any time.

Today companies are growing larger in the number of departments and type of employees. Cloud computing is available to help companies meet their requirements and achieve their goals. Cloud computing can help business to focus on developing good business applications that will bring true business significance.

Analysis of advantages and disadvantages of Cloud computing

In the following section we are presenting the main advantages and disadvantages of Cloud Computing

### II. ADVANTAGES OF CLOUD COMPUTING

Cloud computing offers several advantages to end users. The users neither have to support the infrastructure nor knowledge necessary to develop and maintain the infrastructure. Someone else is taking care of infrastructure, development environment or application. Business is now able to focus on their core business.

Switching to a cloud is a low-cost proposition. It does not require a large capital investment in hardware, equipment and infrastructure.[3] Unlike traditional LAN or WAN which need loads of hardware and software to operate, here all one needs is a device that lets you access the internet viz. laptop, tablet, PDA or a smart phone. Since the costs of infrastructure are already borne by the service provider the consumer can just rent a service and he is good to go. SaaS is one such example. Since there is complete flexibility as far as scalability is concerned a user can start on a smaller scale and increase the usage as the need be and vice versa.

The beauty of cloud computing is that it's easy and fast. It can simplify all most everything from small and medium applications like billing software to large scale ERPs, by keeping them out of the office. Thus giving its user the ability to focus on his core strengths rather than engaging in administrative aspects. Regardless of one's location, one can access cloud based applications from anywhere in the world. In case of a natural disaster or any other emergency at the location of the business the consumer is always sure that his data is safe at secured.

Now a days, clouds provide almost all the software need for day to day activities the costs of purchasing expensive software applications can be reduced significantly for e.g. Google Docs.

Again since cloud providers manage the software used by us the costs of upgrading or changing them is taken care off by them.

Services are platform independent hence the user is free from the worries of Format compatibility on different OS. Just like platform independence clouds are device independent too. You can access the cloud from any device and yet get all you applications and documents on it.

Unlike a desktop, in which if a hard disk crashes there is a risk of entire data getting destroyed, a computer crashing in the cloud should not affect the storage of your data since they have a robust back up system.

Cloud computing offers virtually limitless storage at the same time sharing documents and other data is like piece of cake resulting in ease of doing business.

### III. DISADVANTAGES OF CLOUD COMPUTING:

A cloud comprises of main line servers and back up servers. Hence when a server or a website, to be more precise crashes, another server picks up where the other left off and your business keeps going. This means that there are at least two copies of data stored over a cloud. This results in redundancy of data and since the size of data goes in millions of terabytes it will soon become difficult to manage. It is a common practice among us to save lots of data like old pictures, songs, movies, soft copies of various documents etc. even though we are not going to use them too often. Resulting in unnecessary blockage of vital storage space.

There are lot of ambiguities as far as pricing in cloud computing is concerned. Certain amount of data may be shared by common set of users and certain data might be unique to each user in a cloud. Ex: NIIT cloud computing where study material is common for each user but assignments might be unique. Hence whether to charge on the amount of data stored or the amount of data used by user is not clear. As a result there are no standard pricing structures followed by service providers.

There is no standard platform used for cloud computing. So a user cannot change the service provider easily.

Recommendations are given to overcome the shortfalls of Cloud Computing.

Data Fetching: Fetching data in data storage is critical. Hence, Prefetching of Data will be helpful in generating faster results.

Prefetching is usually used to download links, images, documents and the like that are yet to be explored or read by the user so that they're available when working offline. Prefetching is a very powerful tool in cloud computing and it is based on usage patterns and will be used to store frequently used data in an active server, while less used or redundant data will be stored over a set passive servers. Although a very useful tool, yet, prefetching comes with a major shortcoming and that is cachemiss. Cache miss occurs for each new request, the processor searched the primary cache to find that data. If the data is not found, it is considered a cache miss.

Hybrid Model: Companies today have spent and are continuously spending huge sums of money to upgrade their IT infrastructure and to keep themselves up to date with the changing technology. Cloud computing is a paradigm shift where local networks will soon become useless and obsolete and all the money spent on the infrastructure will go into drain. Hence in order to make use of the existing network and environment and to save the companies from huge losses a Hybrid model is recommended. Here the local networks of an organisation will work in tandem with a cloud and the data will flow seamlessly between the cloud and local server. Thus augmenting the efficiencies of both the systems.

In order to make a hybrid model successful, concept of data segregation is proposed. Here a two stage system i.e. Filtering and Segregation, will work on every data that is generated during the course of the day. Herein the data will be first filtered as per size, frequency, the requirement of user etc. and then based on the information acquired from stage one, the segregation model will decide to either push the data to local server or on the cloud, in the next stage. The criteria will be set by the system based on the data generation, usage or saving patterns and lastly user defined parameters. Because of this system of data segregation, data storage will be reliable, secured, and fast and at the same time data access will be very easy and quick.

The Benefits of Hybrid Model are: 1) Data Security, since important and classified information will be stored on local networks 2) Fast data recovery 3) Reduced Data Loss 4) Fast data fetching.

Benefits of Data Segregation: Segregation of data is useful to minimize data hoarding and to improve efficiency of the active server. In the concept of data segregation, data will be

automatically segregated as per the usage patterns, size of data, type of data and other set criteria to improve efficiency, reduce data redundancy, improve security etc. If a proper data segregation model is implemented then the use of Prefetching can also be minimised, whose major drawback is cache miss.

Hybrid model will work more efficiently on data segregation model since the model will decide where to save data whether in local server or cloud.

#### CONCLUSION:

Cloud computing is a powerful concept for large data processing systems which is accessible, sustainable and reliable. Cloud computing services can also be managed according to need. However as every good thing has a grey side to it, Cloud is no exception. Cloud computing has some drawbacks like data hoarding, redundancy and portability. To overcome the shortfalls of Cloud Computing hybrid model is proposed. Data can be segregated on the basis of some criteria. Because of segregation user can access data easily, quickly and securely.

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